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ABSTRACT

Guidelines to prevent the transmission of blood-borne diseases, especially those caused by the Human Immunodeficiency Virus (HIV) and the Hepatitis B Virus (HBV), in the school setting are provided in this resource manual for school staff. Sections include information on the reasons for the development of this manual; a summary of the means of HIV and HBV transmission; and guidelines and techniques for handwashing, using gloves, disposal of soiled materials and equipment, disease identification, cleanup procedures, and staff education. Appendices include state policy recommendations, correct hygiene and label reading procedures, AIDS Prevention Education Bylaw, Department of Health and Mental Hygiene policies, and Maryland Occupational Safety and Health Standards. (LMI)

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Resource Manual For Handling Body Fluids In The School Setting To Prevent The Transmission Of Human Immunodeficiency Virus And Hepatitis B Virus

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EA 022 531

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DIVISION OF COMPENSATORY EDUCATION AND SUPPORT SERVICES

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1989

Committee

The **Resource Manual for Handling Body Fluids in the School Setting to Prevent the Transmission of Human Immunodeficiency Virus and Hepatitis B Virus** *(Document Number 88160)* is the result of collaborative efforts between the Department of Education and the Department of Health and Mental Hygiene. It has been approved by the AIDS Administration of the Department of Health and Mental Hygiene and has the support of the Interdepartmental Workgroup on AIDS and the Governor's Advisory Council on AIDS.

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Executive Summary For Resource Manual For Handling Of Body Fluids In The School Setting To Prevent The Transmission Of Human Immunodeficiency Virus and Hepatitis B Virus

This resource manual provides local education agencies with guidelines to prevent the transmission of blood-borne diseases, especially HIV and HBV, in the school setting. This manual is to be used by each school system to provide education and training for all school staff.

This document was developed by both educators and health personnel and was approved by the AIDS Administration of the Department of Health and Mental Hygiene.

The resource manual is divided into four sections.

Section 1 - Summarizes the reasons for the development of the manual.

Section 2 - Summarizes the various ways in which the HIV and HBV can be transmitted.

Section 3 - Provides guidelines and techniques for school staff on:

- *Handwashing*
- *Using gloves*
- *Disposing of materials soiled with blood and body fluids*
- *Identifying diseases that are transmitted via body fluids*
- *Cleaning up body fluid spills and the equipment used for cleaning*
- *Disinfecting materials and clothes*
- *Educating and training staff*

Section 4 - Provides supplementary materials related to the control of blood borne diseases.

There should be a copy of the resource manual in each school. All school staff should know where it is kept and have access to it.

Through proper handling of blood and other body fluids, the transmission of blood-borne diseases in the school setting should be negligible.

Introduction

The Maryland State Department of Education and Department of Health and Mental Hygiene recognize that prevention of communicable disease is an important issue of concern among school staff. Therefore, these two State Departments have worked collaboratively to address these concerns and to assist local education agencies (LEAs) in dealing with health-related issues.

Local education agencies have expressed concerns regarding the need for guidelines that outline the precautions that all school staff should take if they come into contact with blood and other body fluids. The following resource manual has been developed in response to concerns regarding the prevention of the transmission of both the Hepatitis B Virus (HBV) and the Human Immunodeficiency Virus (HIV). This manual will assist school staff in developing a level of personal responsibility for the prevention of transmission of any communicable disease. Additionally, the resource manual is to be used to provide the basis for inservice training for school personnel. At a minimum, the inservice training should include the contents of this resource manual.

The Center for Disease Control emphasizes the need to consider all blood and body fluids as potentially infected with Hepatitis B or Human Immunodeficiency Virus. The vast majority of persons who are infected with HBV or HIV have no symptoms; however, transmission can occur through inappropriate handling of blood and body fluids. Based on this consideration, school staff should consider the body fluids from all persons as potentially infected with the Human Immunodeficiency Virus, Hepatitis B, and/or other blood-borne pathogens.

The following resource manual contains guidelines that apply to all members of the school staff who may come into direct or indirect contact with the blood and other body fluids of another person. The resource manual is based on **AIDS and Maryland: Policy Guidelines and Recommendations** and Department of Health and Mental Hygiene's Guidelines: **Control of Hepatitis B** *(Appendix A)*.

HIV AND HBV TRANSMISSION

Human Immunodeficiency Virus (HIV), the virus that causes Acquired Immune Deficiency Syndrome (AIDS), is transmitted through sexual contact and exposure to infected blood. It can also be transmitted from an infected mother to her baby during pregnancy. HIV has been isolated from blood, semen, vaginal secretions, saliva, tears, breast milk, cerebrospinal fluid, body fluids, secretions, and excretions. However, epidemiologic evidence has implicated only blood, semen, vaginal secretions, breast milk and body fluids with visible blood in transmission. The Centers for Disease Control continues to study health care workers who have had percutaneous (through the skin) or mucous membrane exposure (eye, nose and mouth) to blood and body fluids. CDC concludes that while there is a risk of HIV transmission to health care workers, the risk is extremely low and can be minimized by taking appropriate precautions. The CDC and others estimate the risk of HIV transmission following a needle-stick injury from an infected person to be less than one percent. The CDC has not identified any transmission of HIV in the educational setting. *(Appendix B - CDC's Guidelines)*

Identified risk factors for Hepatitis B Virus (HBV) transmission are almost identical to HIV. Despite the similarities in the modes of transmission, the risk of HBV infection far exceeds that for HIV infection. It is estimated that the risk of aquiring HBV infection following injury with a needle contaminated with blood of a HBV carrier ranges from six percent to thirty percent, far in excess of the risk of HIV infection under similar circumstances.

Guidelines For Universal Precautions

I. **Handwashing**

- The most effective technique to prevent the spread of infection is frequent and thorough handwashing. *(Appendix C - Diagram, Correct Procedure for Handwashing)*
- Effective handwashing is accomplished by using soap, **running** water and rubbing hands together for at least ten seconds.
- Hands should be dried on disposable paper towels. Before discarding, these paper towels should be used to turn off faucets.
- Any type of soap is effective; however, antiseptic soap should be available in health rooms or special settings where medical procedures are done (*e.g., cathetorization, traceotomy care*).
- Hands should always be washed before and after providing first aid or similar treatment; after cleaning up blood or body fluid spills; or after handling potentially infectious materials. Always wash hands after removing gloves.

II. **Gloves**

- All workers should routinely use gloves to prevent skin and mucous membrane exposure when in contact with blood, other body fluids, or materials contaminated with blood or other body fluids.
- Types of gloves: Vinyl or latex gloves are appropriate for use in the school. It is recommended that janitorial staff use reusable gloves of a heavy material, such as household gloves. Plastic gloves, such as those used in cafeterias, do not provide adequate protection for handling possibly infectious materials.
- Accessibility: Disposable gloves should be available in every classroom, office area, janitorial closet, and laundry area. These gloves should be maintained in a location accessible to all staff and substitutes. The quantity of gloves should be predicated on the subject area, age of the students and any special needs of the students and teachers. The supply of gloves needs to be replenished throughout the year.
- All first aid kits should be stocked with gloves and replenished as necessary.
- Disposal: Soiled gloves should be removed using the recommended procedure illustrated in Appendix D *(Diagram, Correct Procedure for Removing Gloves)*. Used Gloves should then be disposed of by wrapping in a paper towel and placed in a plastic bag lined trash can. Wash hands after removing gloves.
- Staff Instruction: Procedures for putting on, removing, and disposing of soiled gloves need to be included in staff education programs *(Appendix E - AIDS Prevention Education Bylaw)*.

III. **Disposal of Waste Soiled With Blood and other Body Fluids:**

- Liquid waste *(blood vomitus, etc.)* can be disposed of into the public sewer system.
- Materials *(sanitary napkins, bandages, diapers, etc.)* contaminated with blood or other body fluids should be placed into a plastic bag. The bag should be tied off with a twist-tie and placed in a second plastic bag that is tied off with a twist-tie. The combined thickness of both bags should be at least 3 mm. in thickness. This double bag can then be disposed of in the regular trash.
- Disposable sharps *(needles, syringes, capillary tubes, lancets)* should be left intact and disposed of into puncture-resistant containers that are leak-proof. **NEVER ATTEMPT TO RECAP NEEDLES, BEND THEM, OR OTHERWISE ATTEMPT TO PURPOSELY BREAK THEM.** *(More needle-stick injuries occur in this manner than during routine use)*. Do not overfill the container, as this can also lead to needle-stick "accidents". When the container is 3/4 full, fill it with a 1:10 bleach and water solution *(see Part V)*. After 10 minutes, you can then dispose of the container in the regular trash.

IV. **Potential Hazards of Body Fluid Spills**

The following table provides examples of particular germs that may occur in body fluids of children and the respective transmission concerns. It must be emphasized that with the exception of blood, which is normally sterile, the body fluids with which one may come in contact usually contain many organisms, some of which may cause disease. Furthermore, many germs may be carried by individuals who have no symptoms of illness. These individuals may be at various stages of infection: incubating disease, mildly infected with the disease without symptoms, or chronic carriers of certain infectious agents including the AIDS and hepatitis viruses. In fact, transmission of communicable diseases is more likely to occur from contact with infected body fluids of unrecognized carriers than from contact with fluids from recognized individuals because simple precautions are not always carried out.

V. **Clean-Up of Blood/Body Fluids**

- Disposable gloves should be worn. Disposable cleaning cloths should be used to clean up spills of blood and other body fluids.
- Surface debris should be removed first. Then a 1:10 solution of common household bleach solution *(one part bleach to nine parts water)* or appropriate disinfectant should be used to disinfect the area. If a disinfectant is used, check the label and follow instructions for recommended dilution and surface contact time.

Table 1

Transmission Concerns In The School Setting Body Fluid Source Of Infectious Agents

Body Fluid Source	**Organism of** Concern	**Transmission** Concern
Blood • cuts/abrasions • nosebleeds • menses • contaminated needles	Hepatitis B Virus Human Immunodeficiency Virus Cytomegalovirus	Bloodstream innoculation through cuts and abrasions on hands; Direct bloodstream innoculation.
Feces • incontinence	Salmonella Bacteria Hepatitis A Virus Shigella Bacteria Rotavirus	Fecal/Oral spread from contaminated hands
Urine • incontinence	Cytomegalovirus	Bloodstream and orally contaminated hands
Respiratory Secretions • saliva • nasal discharge	Mononucleosis Virus Common Cold Virus Influenza Virus	Oral spread from contaminated hands
Vomitus	Gastrointestinal Viruses, e.g., Norwalk Agent Rotavirus	Oral Spread from contaminated hands
Semen	Hepatitis B Virus Human Immunodeficiency Virus Gonnorhea	Contact with semen

If additional information is needed on listed diseases, call your local health department.

• Disinfectants: A hospital-grade disinfectant should be used to clean surfaces contaminated with body fluids. Such disinfectants will kill vegetative bacteria, fungi, tubercular bacilli, and viruses. The disinfectant should be registered by the U.S. Environmental Protection Agency *(EPA)* for use as a disinfectant in hospitals. *(Appendix F - How To Read A Label)*

VII. **Cleaning of Equipment/Clothing**

• Gloves should be worn when handling soiled clothing.

• Soiled clothing should be handled as little as possible to prevent gross microbial contamination of the air and employees. If immediate laundering is not possible, soiled clothing should be double bagged and sealed until removed by parent or guardian.

• Laundry should be washed with detergent on the hot cycle. Clothing soaked with blood and other body fluids should be washed seperately from other items. Presoaking may be required for heavily soiled clothing.

• There is no epidemiologic evidence of HIV/HBV transmission from soiled laundry. The effect of dilution, ph changes, and heat while laundering renders the risk of HIV and HBV transmission negligible.

• Sponges, mops or other non-disposable equipment that have been contaminated with blood and other body fluids should be cleaned with soap and water and soaked in a 1:10 bleach and water solution for at least 10 minutes. ***(Note: Bleach solution may be damaging to some materials.)*** Bleach solution must be used within 24 hours of its preparation. Always store bleach securely and in a labeled container to prevent accidental ingestion or misuse.

• The sharing of toys should be discouraged. When toys are shared, they should be washed with soap and water, cleaned with a bleach solution, rinsed, and dried. Stuffed toys should not be exchanged among children.

VII. Disinfection of Rugs

• For soiled rugs, apply a sanitary absorbent agent, let dry, and vacuum. If necessary, mechanically remove with dustpan and broom, then apply rug shampoo with a brush and revacuum.

• Refer to VI, Cleaning of Equipment/Clothing, for directions on how to clean any materials or equipment used to clean the rug.

VIII. Education and Training for School Staff

It is the responsibility of every school system to ensure that **all** school staff receive general information about blood-borne infectious diseases and are informed of the occupational exposure risk factors associated with the transmission of these diseases, including Hepatitus B Virus and Human Immunodeficiency Virus. This needs to be done so that each staff member can recognize potentially hazardous situations and take precautions to avoid or minimize personal risk.

Each school system shall evaluate each routine or reasonably anticipated job-related task or group of tasks and determine which tasks are likely to result in contact with blood or body fluids. For any and all school staff who perform, or may be required to perform a contact task, all school systems shall establish and maintain a staff training and education program. This staff training and educational program shall conform to the Maryland Occupational Safety and Health (MOSH) Standards for **Occupational Exposure to Blood-borne Infectious Diseases** *(Appendix H)*.

It is the responsibility of each school system to keep and maintain records in accordance with the MOSH Standards *(Appendix H)*.

IX. Management of Blood and/or Body Fluid Exposures

School personnel who have experienced blood and/or body fluid exposures, as defined in **Management Exposures** *(Appendix G)*, should be directed to follow the procedures outlined in that document. Procedures for record keeping and/or reporting should follow the local education agencies' procedures for reporting and the **Standards for Occupational Exposures to Blood-Borne Infectious Diseases** — Maryland Occupational Safety and Health *(Appendix H)*.

Appendices

Appendix A ..... AIDS and Maryland: Policy and Recommendations

Appendix B ..... Center for Disease Control's Guidelines

Appendix C ..... Correct Procedure for Handwashing

Appendix D ..... Correct Procedure for Removing Gloves

Appendix E ..... AIDS Prevention Education Bylaw

Appendix F ..... How To Read A Label

Appendix G ..... Department of Health and Mental Hygiene, *Human Immunodeficiency Virus: Infection Control and Related Policies*

Appendix H ..... Maryland Occupational Safety and Health Standards for *Occupational Exposures to Blood-borne Infectious Diseases*

Appendix A

AIDS AND MARYLAND

Policy Guidelines and Recommendations

Report of the Governor's Task Force on Acquired Immune Deficiency Syndrome

HARRY HUGHES
GOVERNOR
STATE OF MARYLAND

DECEMBER 1986

Acquired Immune Deficiency Syndrome/HIV Infection: Recommendations For The Education Of Children

The Human Immuno Deficiency virus is the viral agent responsible for Acquired Immune Deficiency Syndrome (AIDS). Persons who become infected with the virus: (1) may develop AIDS, which is fatal; (2) may develop an illness which is less severe and non-fatal; or (3) may experience no symptoms of the disease.

The spread of AIDS/HIV to infants and children has resulted in questions regarding whether and how these children can be managed or placed in the school setting. Highly charged emotional issues related to HIV infection require that the placement and/or management of these children in the school setting be based on available evidence regarding the risks of transmission of the HIV agent to others in the school setting and the risks to the child with HIV infection of acquiring other infectious agents in the school setting, along with the careful consideration of the confidentiality and legal issues involved.

Based on current evidence, casual person-to-person contact as would occur among school children poses no risk of transmission of HIV, the viral agent responsible for AIDS. However, a theoretical potential for transmission between young children or neurologically handicapped children who lack control of their body secretions may exist; this theoretical transmission would most likely involve exposure of open skin lesions or mucous membranes of a susceptible person to the blood and possibly other body fluids of an infected person.

Since HIV infections may result in immune deficiency, the infected child may have a greater risk of acquiring infectious agents. Assessment of this risk to the immuno-depressed child is best made by the child's physician who is specifically aware of the individual child's immune status.

The following recommendations apply to all children known to be infected with HIV, regardless of whether or not actual symptoms of disease are present:

1. Decisions regarding the type of educational setting for the HIV infected child should be made on a case-by-case basis taking into account the child's behavior, neurologic development, and physical condition. These decisions are best made using the team approach, including the child's physician, the child's parent or guardian, and personnel from the local education agency and local health department, and should be reviewed and approved by the local superintendent/local board of education.

   (a) For school-aged children infected with HIV, the benefits of an unrestricted setting in most cases outweigh the risks of their acquiring potentially harmful infections in the school setting. These children should be allowed to attend school and after-school day care in an unrestricted setting. A mechanism for the sharing of information between the child's physician and the school authorities is recommended so that a significant change in the child's medical status can be addressed. In addition, if the school experiences an outbreak of a communicable disease which could be threatening to a child infected with HIV, (*e.g., chickenpox, measels*), the child should be temporarily excluded by the principal, pending consultation with the child's physician.

   (b) The following HIV infected children should be excluded from the classroom:

      (1) Those who lack control of body secretions.
      (2) Those exhibiting behavioral problems, such as biting.
      (3) Those with uncoverable, oozing lesions.

   (c) Evaluation to assess the continued need for exclusion should be performed regularly.

2. Persons involved in the education of HIV children should respect the child's right to privacy, including maintaining confidential records. The number of personnel who are aware of the child's condition should be kept to the minimum needed to assure proper care of the child and to detect situations where the potential for transmission may increase, e.g., bleeding injury. In individual situations, such people may include the following: principal, school nurse, and the child's teacher(s). Notification should be done by a process that would maximally assist patient confidentiality — ideally, by direct person-to-person contact. It is not necessary to notify parents of other school children regarding the HIV status of any school child.

3. Screening for HIV infection as a condition for school entry is not warranted based on available data.

Recommended Public Health Educational Efforts

1. As a coordinated activity between the local education agency and the local health department, regardless of whether HIV infected children are involved, steps should be taken to educate parents, students, and school employees regarding HIV and its transmission. Such education would serve to reduce the risk of transmission to others and to assist efforts to provide the best education for infected children.

2. All schools should adopt routine procedures to minimize the transmission of communicable diseases. Handwashing (with soap and running water for 15-30 seconds and drying with disposable paper towels) is the single most important technique for preventing the spread of disease and should be done frequently. In addition, specific precautions should be taken whenever there is potential for contact with the blood or body fluids of children:

(a) Exposure of open skin lesions or mucous membranes or blood or body fluids should be avoided. If open lesions are present, disposable gloves should be worn.

(b) Surfaces soiled with blood or body fluids should be immediately and thoroughly cleaned. It is advisable to cover the blood/body fluids with paper towels, flood with a solution of one cup household bleach in 9 cups of water, and allow it to remain for at least 15 minutes before disposing of paper towels.

(c) Disposable materials, e.g., gloves, paper towels, sanitary napkins, should be promptly discarded into sealable plastic bags.

(d) Mops and other non-disposable cleaning materials are not recommended, but if used, should be rinsed in the disinfectant.

(e) Hands should be washed thoroughly after contact with the blood or body fluids of any child, including after removing disposable gloves.

3. All students in a dormitory setting should be educated about appropriate hygiene measures to reduce the risk of household transmission of communicable disease. Specifically, students should be taught to avoid the sharing of items which increase the potential for exposure to blood, e.g., toothbrushes, razors, nail files. As stated in #2 above, routine procedures for handling blood, body fluids, and soiled surfaces should be adopted, regardless of whether individuals with HIV infection are in residence. For HIV infected students in a dormitory setting, a private room may be desirable, but not mandatory.

Adapted from the ***Morbidity and Mortality Weekly Report*** *(MMWR), August 30, 1985.*

General Guidelines For Minimizing The Transmission Of Communicable Diseases In Groups Of Developmentally Delayed Children/Youth In School Settings

Certain basic hygiene measures are important to reduce the chance of transmission of any communicable disease in groups of developmentally delayed children/youth in school settings.

1. **HANDWASHING WITH SOAP AND RUNNING WATER FOR 15-30 SECONDS AND DRYING WITH DISPOSABLE PAPER TOWELS IS THE SINGLE MOST IMPORTANT TECHNIQUE FOR PREVENTING THE SPREAD OF DISEASE AND SHOULD BE DONE FREQUENTLY:**

   (a) before eating, drinking, or smoking
   (b) before handling clan utensils or equipment
   (c) before and after handling student's food
   (d) before and after assisting or training the student in toileting and feeding
   (e) before and after using the bathroom
   (f) after contact with body secretions and excretions i.e.: blood, urine, feces, mucus, saliva, drainage from wounds
   (g) after handling soiled diapers, menstrual pads, garmets or equipment
   (h) after caring for any student, especially those with nose, mouth, or ear discharges

   NOTE: **The wearing of disposable gloves is not a substitute for handwashing. Hands must be washed thoroughly after removing gloves.**

2. The mouthing of toys, pencils and other shared items by students should be strongly discouraged.

3. Kissing on the mouth, between caregivers and students or among students, should be strongly discouraged.

4. Daily sanitization of all surfaces involved in food handling or diapering and of all surfaces or items which have been mouthed by students (including toys) should be done using the following freshly-prepared solution: 1/4 to 1/2 cup of household bleach in one gallon of water.

5. All students should be educated about appropriate hygienic measures to prevent the spread of communicable diseases. Those students who are known carriers of a communicable disease should be educated about the additional control measures for minimizing transmission of the specific disease.

Policy Regarding Chronic Carriers Of Hepatitis B Virus, Herpes Simplex Virus, and Cyomegalovirus In Groups Of Developmentally Delayed Children/Youth In School Settings

The Preventive Medicine Administration of the Department of Health and Mental Hygiene makes the following recommendations regarding chronic carriers of hepatitis B virus, herpes simplex virus, and cytomegalovirus in groups of developmentally delayed children/youth in school settings:

1. Students and staff who are known chronic carriers should **NOT** be excluded from the school system.
2. Students and staff who are known chronic carriers should **NOT** be excluded from routine school activities i.e. riding the bus, playground games, assemblies, eating in the cafeteria, etc.
3. **Routine** screening of students and staff to detect carrier status is not recommended.
4. The **"GENERAL GUIDELINES FOR MINIMIZING THE TRANSMISSION OF COMMUNICABLE DISEASE IN GROUPS OF DEVELOPMENTALLY DELAYED CHILDREN/YOUTH IN SCHOOL SETTINGS"** should be implemented where applicable in the educational setting.
5. Specific guidelines to minimize the transmission of hepatitis B virus, herpes simplex virus, and cytomegalovirus have been developed by the Preventive Medicine Administration and should be implemented where applicable in the educational setting.
6. Potentially pregnant women working with known chronic carriers should be advised of a student's carrier status and informed of possible fetal risks.

Guidelines For Minimizing Hepatitis B Virus Transmission In Groups Of Developmentally Delayed Children/Youth In School Setting

General Information

Hepatitis B, a liver disease found throughout the world, is caused by the hepatitis B virus (HBV). The risk of acquiring the infection is increased among users of illicit injectable drugs who share needles, homosexual males, household and sexual contacts of HBV carriers, residents and staff of institutions for the mentally-retarded, homodialysis patients, and health care personnel who handle blood. It is rare among children: in the United States only about one percent of the symptomatic cases are below the age of 10 years.

The hepatitis B virus appears in the blood during the incubation period and usually persists only during the early asymptomatic stage of the acute disease. However, in some, a carrier state may develop with the virus present in the blood for many months or years. Some carriers may eventually clear the HBV virus. A subclinical (inapparent) infection with HBV may also lead to a carrier state. HBV infection confer immunity, probably for life.

At the present time, several mechanisms of HBV transmission are recognized:

1. Direct innoculation of infectious blood or blood products (by accidental needlesticks, sharing of contaminated needles, via blood or blood product transfusion).
2. Transfer of infectious blood or serum through cuts, scratches, abrasions, bites, and unrecognized breaks of the skin, or through skin lesions, such as burns, impetigo, and dermatitis.
3. Introduction of infectious blood or body fluids onto mucosal surfaces (vaginal, oral, conjunctiva) by accidental splashes or sexual/intimate contact.
4. Indirect spread by objects contaminated with blood, such as toothbrushes, scissors, hospital equipment, etc. (This is not recognized as a significant mode of spread).
5. Saliva has been found to be an inefficient transmitter of hepatitis B. Although one cannot rule out the transmission of hepatitis B through saliva, the risk appears to be low.

NOTE: The following are **NOT** considered to be significant sources of transmission for the HBV: cups, bottles, toys, linens, coughing, sneezing, swimming pools, toilet seats, and practical contact with infected persons. It appears that the risk of intra-classroom spread of HBV is probably very low.

A safe and highly effective vaccine which prevents hepatitis B disease is now available.

Guidelines

In addition to the **"GENERAL GUIDELINES FOR MINIMIZING THE TRANSMISSION OF COMMUNICABLE DISEASES IN GROUPS OF DEVELOPMENTALLY DELAYED CHILDREN/YOUTH IN SCHOOL SETTING"**, the following guidelines are recommended specially to reduce the chance of transmission of the hepatitis B virus:

1. Although **routine** screening for carrier status is not recommended, it **is** recommended that students who are known to have been residents in an institution for the mentally retarded be screened. *(The prevalence of the carrier state is much greater in this screening will already have been done, since it has been the common practice of Maryland institutions in recent years).*
2. Towels, toothbrushes, razors, scissors, nail files, and woodworking tools should not be shared by carriers and susceptibles.
3. Disposable gloves should be worn by the caretaker in any situation where contact with the carrier's blood is a possibility: caring for nose bleeds or oozing/bleeding lesions (cuts, sores), when handling or disposing of blood-contaminated articles (i.e. bedding, clothing, toys, sanitary napkins, etc.), and when cleaning blood spills.
4. Blood spills should be immediately and thoroughly cleaned with paper towels using soap or detergent and water until the surface is free of visible blood. To inactivate HBV, one part household bleach to 9 parts water (freshly prepared) may be applied to the surface for 15-20 minutes and then rinsed off in with water.
5. Non-disposable objects soiled with the carrier's blood may be cleaned as in #3 above or may be boiled for 15 minutes.
6. Disposable items soiled with the carrier's blood, such as gloves, sanitary napkins, and gauze pads, should be promptly discarded in sealable plastic bags or containers.
7. Dishes, clothes, or linens used by a carrier and not contaminated with blood do not require special washing or laundering procedures. Dishwashers, washing machines, and dryers can be utilized.
8. In the event of contact with visible blood of an HBV carrier (e.g. blood splash on the eye or mouth, a bite that draws blood, stick with a blood-contaminated needle) the exposed person, if susceptible (not immunized against hepatitis B) should be given a single dose of hepatitis B immune globulin (HBIG) of 0.06 ml/kg for children or 5 ml for an adult as soon as possible after exposure and within 24 hours. It is recommended that the first dose of hepatitis B vaccine be given intramuscularly at a separate site within seven days of exposure, and the second and third doses given one and six months later. *(Refer to "Hepatitis B Vaccine Recommendations").*

Hepatitis B Vaccine Recommendations

1. Hepatitis B vaccine is warranted for susceptible staff and students in the following two instances:
   (a) during an outbreak (two or more cases) of hepatitis B which can be linked to a single known carrier.
   (b) if a known carrier has behavioral (e.g. biting) or medical (e.g. bleeding gums) problems. 1
2. Vaccine should be offered to susceptible persons at risk of acquiring HBV infection:
   (a) caretakers with hands-on contact with a known carrier
   (b) students with classroom contact with a known carrier
3. Routine screening of staff and students to determine susceptibility (immunity) to the HBV is not neccesary prior to proceeding with vaccination — except in the case of students who are known to have been residents in an institution for the mentally retarded. *(A majority of these students will have been exposed to HBV and therefore the vaccine will be unnecessary).*
4. Hepatitis B vaccine is administered in three seperate doses, with the second and third doses given one and six months, respectively, after the first.
5. Because the risk of hepatitis B transmission in the classroom is low, it is not necessary to exclude the carrier to allow time for susceptible staff and students to become fully vaccinated. However, for carriers with special problems (e.g. aggressive biting) which may greatly increase the risk of transmission, a 6 week temporary exclusion may be warranted. This recommendation is based upon the rationale that most persons develop protective antibodies to HBV within two weeks after the second vaccine dose (or 6 weeks after the first dose).
6. For persons who choose not to be vaccinated, two doses of hepatitis B immune globulin (HBIG), one month apart, may be used with about 75% effectiveness in preventing hepatitis B. However, since the duration of protection afforded by hepatitis B immune globulin (HBIG) is limited to several months, it should not be considered a substitute for the hepatitis B vaccine.

APPENDIX B

MMWR JUNE 24, 1988

"UPDATE: UNIVERSAL PRECAUTIONS FOR PREVENTION OF TRANSMISSION OF HUMAN IMMUNODEFICIENCY VIRUS, HEPATITIS B VIRUS, AND OTHER BLOODBORNE PATHOGENS IN HEALTH-CARE SETTING"

SUMMARY

1. **Body Fluids to Which Universal Precautions Apply**

- blood and other body fluids containing visible blood
- semen
- vaginal secretions
- tissues
- cerebrospinal fluid
- amniotic fluid
- synovial fluid
- pleural fluid
- peritoneal fluid
- pericardial fluid

2. **Body Fluids to Which Universal Precautions do not apply**

- feces
- nasal secretions
- sputum
- vomitus
- saliva- except in dentistry or when saliva contains blood
- sweat
- tears
- urine
- breast milk- except in situation with frequent exposure e.g. breast milk banking

3. **Glove Use**

a. Institutions that judge that routine gloving is not necessary for all phlebotemies should periodically review that policy. Additionally, general guidelines for consistently using gloves are recommended.

b. There are no reported differences in the barrier effectiveness of intact latex and intact vinyl use to manufacture gloves. Guidelines for selection of gloves appropriate to the task are listed.

c. CDC recommends not washing of disinfecting surgical or examination gloves for reuse.

In light of these new recommendations from CDC, the recommendations in memo from this office dated November 10, 1987 for reuse of gloves is rescinded.

NOTE: These guidelines constitute minimum standard of practice. For those institutions that have implemented Universal Precautions, applying them to all body fluids, it is acceptable to retain such policies.

Prepared by Maryland AIDS Administration 6/88

APPENDIX B

CENTERS FOR DISEASE CONTROL June 24, 1988 / Vol. 37 / No. 24

MMWR

MORBIDITY AND MORTALITY WEEKLY REPORT

377 **Update: Universal Precautions for Prevention of Transmission of Human Immunodeficiency Virus, Hepatitis B Virus, and Other Bloodborne Pathogens in Health-Care Settings**
388 **Rocky Mountain Spotted Fever — United States, 1987**
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Perspectives in Disease Prevention and Health Promotion

Update: Universal Precautions for Prevention of Transmission of Human Immunodeficiency Virus, Hepatitis B Virus, and Other Bloodborne Pathogens in Health-Care Settings

Introduction

The purpose of this report is to clarify and supplement the CDC publication entitled "Recommendations for Prevention of HIV Transmission in Health-Care Settings" *(1).**

In 1983, CDC published a document entitled "Guideline for Isolation Precautions in Hospitals" *(2)* that contained a section entitled "Blood and Body Fluid Precautions." The recommendations in this section called for blood and body fluid precautions when a patient was known or suspected to be infected with bloodborne pathogens. In August 1987, CDC published a document entitled "Recommendations for Prevention of HIV Transmission in Health-Care Settings" *(1).* In contrast to the 1983 document, the 1987 document recommended that blood and body fluid precautions be consistently used for all patients regardless of their bloodborne infection status. This extension of blood and body fluid precautions to **all** patients is referred to as "Universal Blood and Body Fluid Precautions" or "Universal Precautions." Under universal precautions, blood and certain body fluids of all patients are considered potentially infectious for human immunodeficiency virus (HIV), hepatitis B virus (HBV), and other bloodborne pathogens.

* The August 1987 publication should be consulted for general information and specific recommendations not addressed in this update.

Copies of this report and of the *MMWR* supplement entitled *Recommendations for Prevention of HIV Transmission in Health-Care Settings* published in August 1987 are available through the National AIDS Information Clearinghouse, P.O. Box 6003, Rockville, MD 20850.

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES/PUBLIC HEALTH SERVICE

Universal precautions are intended to prevent parenteral, mucous membrane, and nonintact skin exposures of health-care workers to bloodborne pathogens. In addition, immunization with HBV vaccine is recommended as an important adjunct to universal precautions for health-care workers who have exposures to blood *(3,4)*.

Since the recommendations for universal precautions were published in August 1987, CDC and the Food and Drug Administration (FDA) have received requests for clarification of the following issues: 1) body fluids to which universal precautions apply, 2) use of protective barriers, 3) use of gloves for phlebotomy, 4) selection of gloves for use while observing universal precautions, and 5) need for making changes in waste management programs as a result of adopting universal precautions.

Body Fluids to Which Universal Precautions Apply

Universal precautions apply to blood and to other body fluids containing visible blood. Occupational transmission of HIV and HBV to health-care workers by blood is documented *(4,5)*. **Blood is the single most important source of HIV, HBV, and other bloodborne pathogens in the occupational setting. Infection control efforts for HIV, HBV, and other bloodborne pathogens must focus on preventing exposures to blood as well as on delivery of HBV immunization.**

Universal precautions also apply to semen and vaginal secretions. Although both of these fluids have been implicated in the sexual transmission of HIV and HBV, they have not been implicated in occupational transmission from patient to health-care worker. This observation is not unexpected, since exposure to semen in the usual health-care setting is limited, and the routine practice of wearing gloves for performing vaginal examinations protects health-care workers from exposure to potentially infectious vaginal secretions.

Universal precautions also apply to tissues and to the following fluids: cerebrospinal fluid (CSF), synovial fluid, pleural fluid, peritoneal fluid, pericardial fluid, and amniotic fluid. The risk of transmission of HIV and HBV from these fluids is unknown; epidemiologic studies in the health-care and community setting are currently inadequate to assess the potential risk to health-care workers from occupational exposures to them. However, HIV has been isolated from CSF, synovial, and amniotic fluid *(6-8)*, and HBsAg has been detected in synovial fluid, amniotic fluid, and peritoneal fluid *(9-11)*. One case of HIV transmission was reported after a percutaneous exposure to bloody pleural fluid obtained by needle aspiration *(12)*. Whereas aseptic procedures used to obtain these fluids for diagnostic or therapeutic purposes protect health-care workers from skin exposures, they cannot prevent penetrating injuries due to contaminated needles or other sharp instruments.

Body Fluids to Which Universal Precautions Do Not Apply

Universal precautions do not apply to feces, nasal secretions, sputum, sweat, tears, urine, and vomitus unless they contain visible blood. The risk of transmission of HIV and HBV from these fluids and materials is extremely low or nonexistent. HIV has been isolated and HBsAg has been demonstrated in some of these fluids; however, epidemiologic studies in the health-care and community setting have not implicated these fluids or materials in the transmission of HIV and HBV infections *(13,14)*. Some of the above fluids and excretions represent a potential source for nosocomial and community-acquired infections with other pathogens, and recommendations for preventing the transmission of nonbloodborne pathogens have been published *(2)*.

Precautions for Other Body Fluids in Special Settings

Human breast milk has been implicated in perinatal transmission of HIV, and HBsAg has been found in the milk of mothers infected with HBV *(10,13)*. However, occupational exposure to human breast milk has not been implicated in the transmission of HIV and HBV infection to health-care workers. Moreover, the health-care worker will not have the same type of intensive exposure to breast milk as the nursing neonate. Whereas universal precautions do not apply to human breast milk, gloves may be worn by health-care workers in situations where exposures to breast milk might be frequent, for example, in breast milk banking.

Saliva of some persons infected with HBV has been shown to contain HBV-DNA at concentrations 1/1,000 to 1/10,000 of that found in the infected person's serum *(15)*. HBsAg-positive saliva has been shown to be infectious when injected into experimental animals and in human bite exposures *(16-18)*. However, HBsAg-positive saliva has not been shown to be infectious when applied to oral mucous membranes in experimental primate studies *(18)* or through contamination of musical instruments or cardiopulmonary resuscitation dummies used by HBV carriers *(19,20)*. Epidemiologic studies of nonsexual household contacts of HIV-infected patients, including several small series in which HIV transmission failed to occur after bites or after percutaneous innoculation or contamination of cuts and open wounds with saliva from HIV-infected patients, suggest that the potential for salivary transmission of HIV is remote *(5, 13, 14, 21, 22)*. One case report from Germany has suggested the possibility of transmission of HIV in a household setting from an infected child to a sibling through a human bite *(23)*. The bite did not break the skin or result in bleeding. Since the date of seroconversion to HIV was not known for either child in this case, evidence for the role of saliva in the transmission of virus is unclear *(23)*. Another case report suggested the possibility of transmission of HIV from husband to wife by contact with saliva during kissing *(24)*. However, follow-up studies did not confirm HIV infection in the wife *(21)*.

Universal precautions do not apply to saliva. General infection control practices already in existence — including the use of gloves for digital examination of mucous membranes and endotracheal suctioning and handwashing after exposure to saliva — should further minimize the minute risk, if any, for salivary transmission of HIV and HBV *(1,25)*. Gloves need not be worn when feeding patients and when wiping saliva from skin.

Special precautions, however, are recommended for dentistry (1). Occupationally acquired infection with HBV in dental workers has been documented *(4)*, and two possible cases of occupationally acquired HIV infection involving dentists have been reported *(5,26)*. During dental procedures, contamination of saliva with blood is predictable, trauma to health-care workers' hands is common, and blood splattering may occur. Infection control precautions for dentistry minimize the potential for nonintact skin and mucous membrane contact of dental health-care workers to blood-contaminated saliva of patients. In addition, the use of gloves for oral examinations and treatment in the dental setting may also protect the patients' oral mucous membranes from exposures to blood, which may occur from breaks in the skin of dental workers' hands.

Use of Protective Barriers

Protective barriers reduce the risk of exposure of the health-care workers' skin or mucous membranes to potentially infective materials. For universal precautions, protective barriers reduce the risk of exposure to blood, body fluids containing visible blood, and other fluids to which universal precautions apply. Examples of protective barriers include gloves, gowns, masks, and protective eyewear. Gloves should reduce the incidence of contamination of hands, but they cannot prevent penetrating injuries due to needles or other sharp instruments. Masks and protective eyewear or face shields should reduce the incidence of contamination of mucous membranes of the mouth, nose, and eyes.

Universal precautions are intended to supplement rather than replace recommendations for routine infection control, such as handwashing and using gloves to prevent gross microbial contamination of hands *(27)*. Because specifying the types of barriers needed for every possible clinical situation is impratical, some judgment must be exercised.

The risk of nosocomial transmission of HIV, HBV, and other bloodborne pathogens can be minimized if health-care workers use the following general guidelines: ‡

1. Take care to prevent injuries when using needles, scalpels, and other sharp instruments or devices; when handling sharp instruments after procedures; when cleaning used instruments; and when disposing of used needles. Do not recap used needles by hand; do not remove used needles from disposable syringes by hand; and do not bend, break, or otherwise manipulate used needles by hand. Place used disposable syringes and needles, scalpel blades, and other sharp items in puncture-resistant containers for disposal. Locate the puncture-resistant containers as close to the use area as is practical.
2. Use protective barriers to prevent exposure to blood, body fluids containing visible blood, and other fluids to which universal precautions apply. The type of protective barrier(s) should be appropriate for the procedure being performed and the type of exposure anticipated.
3. Immediately and thoroughly wash hands and other skin surfaces that are contaminated with blood, body fluids containing visible blood, or other body fluids to which universal precautions apply.

Glove Use for Phlebotomy

Gloves should reduce the incidence of blood contamination of hands during phlebotomy (drawing blood samples), but they cannot prevent penetrating injuries caused by needles or other sharp instruments. The likelihood of hand contamination with blood containing HIV, HBV, or other bloodborne pathogens during phlebotomy depends on several factors: 1) the skill and technique of the health-care worker, 2) the frequency with which the health-care worker performs the procedure (other factors being equal, the cumulative risk of blood exposure is higher for a health-care worker who performs more procedures), 3) whether the procedure occurs in a routine or emergency situation (where blood contact may be more likely), and 4) the prevalence of infection with bloodborne pathogens in the patient population. The likelihood of infection after skin exposure to blood containing HIV or HBV will depend on the concentration of virus (viral concentration is much higher for hepatitis B than for HIV), the duration of contact, the presence of skin lesions on the hands of the health-care worker, and — for HBV — the immune status of the health-care worker. Although not accurately quantified, the risk of HIV infection following intact skin contact with infective blood is certainly much less than the 0.5% risk following percutaneous needlestick exposures *(5)*. In universal precautions, *all* blood is assumed to be potentially infective for bloodborne pathogens, but in certain settings (e.g., volunteer blood-donation centers) the prevalence of infection with some bloodborne pathogens (e.g., HIV, HBV) is known to be very low. Some institutions have relaxed recommendations for using gloves for phlebotomy procedures by skilled phlebotomists in settings where the prevalence of bloodborne pathogens is known to be very low.

Institutions that judge that routine gloving for *all* phlebotomies is not necessary should periodically reevaluate their policy. Gloves should always be available to health-care workers who wish to use them for phlebotomy. In addition, the following general guidelines apply:

1. Use gloves for performing phlebotomy when the health-care worker has cuts, scratches, or other breaks in his/her skin.
2. Use gloves in situations where the health-care worker judges that hand contamination with blood may occur, for example, when performing phlebotomy on an uncooperative patient.
3. Use gloves for performing finger and/or heel sticks on infants and children.
4. Use gloves when persons are receiving training in phlebotomy.

Selection of Gloves

The Center for Devices and Radiological Health, FDA, has responsibility for regulating the medical glove industry. Medical gloves include those marketed as sterile surgical or nonsterile examination gloves made of vinyl or latex. General purpose utility ("rubber") gloves are also used in the health-care setting, but they are not regulated by the FDA since they are not promoted for medical use. There are no reported differences in barrier effectiveness between intact latex and intact vinyl used to manufacture gloves. Thus, the type of gloves selected should be appropriate for the task being performed.

The following general guidelines are recommended:

1. Use sterile gloves for procedures involving contact with normally sterile areas of the body.
2. Use examination gloves for procedures involving contact with mucous membranes, unless otherwise indicated, and for other patient care or diagnostic procedures that do not require the use of sterile gloves.
3. Change gloves between patient contact.

‡ *The August 1987 publication should be consulted for general information and specific recommendations not addressed in this update.*

4. Do not wash or disinfect surgical or examination gloves for reuse. Washing with surfactants may cause "wicking," i.e., the enhanced penetration of liquids through undetected holes in the glove. Disinfecting agents may cause deterioration.
5. Use general-purpose utility gloves (e.g., rubber household gloves) for housekeeping chores involving potential blood contact and for instrument cleaning and decontamination procedures. Utility gloves may be decontaminated and reused but should be discarded if they are peeling, cracked, or discolored, or if they have punctures, tears, or other evidence of deterioration.

Waste Management

Universal precautions are not intended to change waste management programs previously recommended by CDC for health-care settings *(1)*. Policies for defining, collecting, storing, decontaminating, and disposing of infective waste are generally determined by institutions in accordance with state and local regulations. Information regarding waste management regulations in health-care settings may be obtained from state or local health departments or agencies responsible for waste management.

Reported by: Center for Devices and Radiological Health, Food and Drug Administration, Hospital Infections Program, AIDS Program, and Hepatitis B, Div. of Viral Diseases, Center for Infectious Diseases, National Institute for Occupational Safety and Health, CDC.

Editorial Note: Implementation of universal precautions does not eliminate the need for other category-or disease-specific isolation precautions, such as enteric precautions for infectious diarrhea or isolation for pulmonary tuberculosis *(1,2)*. In addition to universal precautions, detailed precautions have been developed for the following procedures and/or settings in which prolonged or intensive exposures to blood occur: invasive procedures, dentistry, autopsies or morticians' services, dialysis, and the clinical laboratory. These detailed precautions are found in the August 21, 1987, "Recommendations for Prevention of HIV Transmission in Health-Care Settings" *(1)*. In addition, specific precautions have been developed for research laboratories *(28)*.

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Proper Handwashing Technique

APPENDIX C

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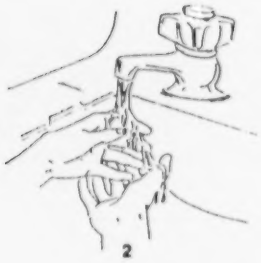

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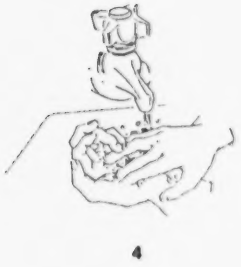

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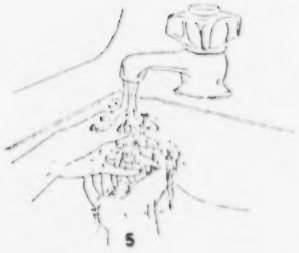

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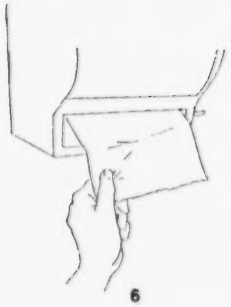

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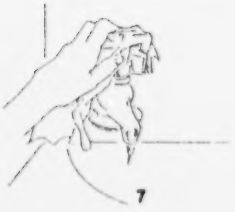

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Proper Removal Of Gloves

APPENDIX D

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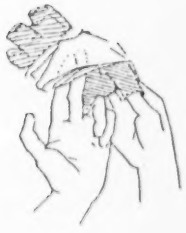

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APPENDIX E

TITLE 13A

STATE BOARD OF EDUCATION

Subtitle 04 SPECIFIC SUBJECTS

Chapter 15 AIDS Prevention Education

Authority: Education Article §§2-205(h) and 7-401, Annotated Code of Maryland

.01 General.

A. Acquired immune deficiency syndrome (AIDS) is a major health problem for which no cure or effective treatment has been found, and AIDS education is critical in preventing the spread of AIDS.

B. Notwithstanding the provisions contained in COMAR 13A.04.01, local school systems shall provide annual instructions in acquired immune deficiency syndrome to all students at least once in grades 3 to 6, in grades 6 to 9, and in grades 9 to 12.

C. Each local board of education shall determine the three grades between 3 and 12 at which all students are to receive instruction.

D. Students may be excused from the instructional unit on AIDS prevention upon a written request from their parents or legal guardians. For those students excused from the unit, each local school shall provide other worthwhile learning activities in another health-related area. When practical, curricular materials may be made avaiable by the school system for home instruction use by parents or guardians of students excused from AIDS prevention instruction in the school.

E. Content and curricular topics shall be appropriate to the age, interests, and needs of the students, giving particular regard to students at the early learning level. Pursuant to instructional guidelines developed by the Maryland State Department of Education and as appropriate for the age of the students, curricular topics shall include:

(1) The definition and description of AIDS;

(2) Symptoms and complications associated with AIDS and related disorders;

(3) Means by which human immunodeficiency virus (HIV) is transmitted;

(4) Diagnosis and treatment of AIDS;

(5) Methods for prevention of the spread of AIDS; and

(6) Information on the available research concerning AIDS.

.02 Curriculum Development and Review.

A. Each local school system shall develop curriculum in AIDS prevention eduation in consultation with the local health department and may use resources available from the Maryland Department of Health and Mental Hygiene and the Maryland State Department of Education.

B. Each local school system shall use an existing committee or appoint a committee comprised of educators, representatives of the community including parents or guardians of children enrolled in a public school program, and the local health department which shall examine all printed and audiovisual materials and computer software proposed for use in the AIDS prevention education curriculum. Recommendations from this committee shall be submitted to the local superintendent of schools and the local board of education for final action. All aspects of the curriculum shall be reviewed by the commitee at least annually to assure that it is accurate and current.

.03 Teacher Training.

School staff selected to teach AIDS prevention curricular topics in the classroom shall receive inservice education before initiating instruction with students, and annually after that. The content of the inservice education program should be designed in consultation with the local health department.

.04 Staff Awareness Program.

Personnel employed by the local school system shall be provided annually with information or an awareness program about AIDS and its prevention. The information or awareness program should be developed in consultation with the local health department.

.05 Parent Awareness Program.

Each local school system should make an effort to provide information about AIDS to the parents of children enrolled in public school programs. The information or awareness program should be developed in consultation with the local health department.

.06 Implementation.

In September 1988, each local superintendent of schools shall certify in writing to the State Superintendent of Schools that the school system has complied with all provisions of this chapter.

Administrative History

Effective date:

Regulations .01-.06 adopted as an emergency provision effective October 6, 1987 (14:22 Md.R.2336), emergency status expired April 6, 1988 (Emergency provisions are temporary and not printed in COMAR)

Regulations .01-.06 adopted effective May 2, 1988 (15:9 Md.R.1110)

APPENDIX F

Understanding The Labels of Germicides

Under the Federal Insecticide, Fungicide and Rodenticide Act (FIRFA), the Environmental Protection Agency (EPA) is responsible for the registration and regulation of germicides. In exercising this responsibility, the EPA requires that label claims be truthful, meaningful, and practical for safe and effective use of the product.

When a germicide is being considered for purchase, the label should be checked for:

1. The EPA registration number;
2. An ingredient statement;
3. Directions for use;
4. Adequate safety and precautionary information;
5. The name and address of the manufacturer or distributor.

Additionally, examine the label for the tabulation of benefits. The claims that appear on the label are established by testing the product against a uniform set of official standards of the Association of Official Analytical Chemists, which are used by the EPA. Under these standards a HOSPITAL DISINFECTANT must be effective against the test organisms Staphylococcus aureus, Salmonella Cholerasuis, and Pseudomonas Aerugenosa. A TUBERCULOCIDAL LABEL means the chemical has been tested against Mycobaterium tuberculosis var bovia. Labels may also include fungicidal, virucidal, and sporocidal claims.

The label on a germicide is a legal document and is a guarantee that the product will peform as stated on the label. An informed examination of the label will result in purchase of a germicide that will perform the desired functions effectively.

APPENDIX G

State Of Maryland
Department of Health and Mental Hygiene
AIDS Administration
And
Epidemiology and Disease Control

III. MANAGEMENT OF EXPOSURES

A. Definition of Exposure

Epidemiologic evidence indicates that while HIV can be isolated from numerous body fluids, the only body fluids known to be responsible for infections are blood, semen, vaginal fluids and breast milk. The following classification of exposures is designed to clarify the need for following-up from different types of exposures. Significant exposures to Hepatitis B Virus and their management are thoroughly discussed in the MMRW June 19, 1987: 36, 353-366.

1. CLASS I EXPOSURES

a. Percutaneous exposures occur through the skin, e.g. needle stick injury, injury from sharp objects.

b. Mucocutaneous exposures to blood, semen, serosanguinous or purulent drainage.

Mucocutaneous exposures occur through splashes or aerosolization into mucous membranes, e.g. eye, nose, mouth.

c. Open wound exposures to blood, semen, serosanguinous or purulent drainage.

Open wound exposures include contact with exudative lesions, burns, dermatitis, or chapped skin.

2. CLASS II EXPOSURE

a. Percutaneous exposures to other body fluids*
b. Mucocutaneous exposure to other body fluids.
c. Open wound exposures to other body fluids.

*fluids other than blood, semen, serosanguinous or purulent drainage.

3. CLASS III EXPOSURES

Intact skin exposure to blood or body fluids.

B. Not an Exposure

1. Being in the same room as an HIV infected person.
2. Touching an HIV infected person.
3. Blood/body fluids on clothing or equipment.

C. Management of Exposures

1. Immediate Response (Class I, II, III Exposures)

a. Percutaneous exposure: As soon as possible wash area with running water or germicidal handwashing solution over wound and attempt to express blood from the wound. After thoroughly cleaning wound, apply alcohol, betadine or hydrogen peroxide.

b. Mucocutaneous exposure: Flush eye, nose or mouth thoroughly with water.

c. Open wound exposure: Flush area with saline or water and apply alcohol, betadine or hydrogen peroxide.

d. Intact skin exposure: Wash area promptly.

Follow-up Procedure

1. Evaluate Exposure

Determine what class of exposures has occurred. The following steps are recommended depending upon the class of exposure.

a CLASS I EXPOSURE:
There is documented risk of HIV infection with a Class I Exposure which is presently estimated to be less than 1%. Follow-up counseling and testing is definitely recommended for class I exposures.

b CLASS II EXPOSURE:
Class II Exposures offer an extremely low risk of HIV infection. Thus follow-up counseling and testing is optional for Class II Exposures.

c CLASS III EXPOSURE:
There is no epidemiologic evidence that intact skin exposure to blood/body fluids is a risk factor HIV infection. Employees concerned about Class III Exposure should be offered counseling and education about HIV. If the employee still desires HIV testing it should be available through the employer or at an alternative test site.

2. Procedures with Class I (and possibly Class II) Exposures.

a. Counseling and testing the source person

When possible, the person who is the source of exposure should be informed of the incident and tested for HIV status after informed consent is obtained. Pre- and post-test counseling should be provided for the source person. Institutions should develop policies for testing source persons when consent can not be obtained (e.g. an unconscious person). Policies should include statement of who has the right to consent for testing and who has acess to test results.

b. Counseling and Testing the Exposed Person

1) Counseling
The exposed person should be counseled regarding the low risk of HIV infection with exposures. Ongoing couseling should be available to employees who have fears regarding HIV exposures. It is recommended that all exposed persons follow "precautions" listed below until determination of the need for follow-up HIV Antibody test is made.

2) Baseline HIV Antibody Test
It is recommended that the exposed person have a voluntary, confidential baseline HIV antibody test as soon as possible, but no longer than 2 weeks after the exposure. It usually takes between 2 and 12 weeks to produce antibodies after infection with the HIV virus. If this baseline HIV antibody test is positive, the infection occured prior to the present exposure.

3) Reporting Febrile Illness
Advise the exposed person to report and seek medical evaluation for any acute febrile illness within 12 weeks after the exposure. Such an illness, particularly one characterized by fever, rash or lymphadenopathy, may be indicative of recent HIV infection.

4) Follow-up HIV Antibody Tests
If the source person is:
a. HIV antibody negative;
b. has no signs and symptoms of HIV infection;
c. has no history of high risk behaviors;

AND the exposed person does not experience a febrile illness post-exposure, then no further testing or precautions are recommended for the exposed person. Follow-up testing is optional.

If the Source person
a. refuses to be HIV tested;
b. is known to be HIV positive;
c. has history of high risk behaviors;

OR if the exposed person experiences an acute febrile illness post-exposure, the exposed person should be counseled and tested and follow precautions to prevent transmission of HIV.

If the baseline HIV antibody test is negative, the HIV antibody test should be repeated at 6 weeks, 3 months, 6 months and 12 months to determine if infection with the HIV virus has occurred. The majority of persons infected with HIV become antibody positive during the first 3 months following exposure.

5) Precautions

During the follow-up or retesting period described above, especially during the first 12 weeks when most infected persons are expected to seroconvert (HIV antibody test becomes positive), it is recommended that the exposed person be given the following information and advice regarding precautions for preventing transmission of HIV:

a. Do not donate blood or plasma
b. Do not share personal items potentially contaminated with blood, i.e. razors, toothbrushes.
c. There is a risk of infecting others by sexual intercourse, sharing of needles, oral genital contact and possibly intimate kissing (MMWR 34, 1-5)
d. Use latex condoms during sexual intercourse to prevent the exchange of body fluids. *(Note: Use of condoms are not 100% protection).*
e. Use of Nonoxynol-9 foams or jellies for vaginal intercourse is suggested.
f. Delay pregnancy for at least 12 months.
g. Health care workers should follow guidelines regarding "Universal Precautions and the HIV Infected Worker".

REFERENCES: MMWR 1985;34:1-5 MMWR 1987;36 (Suppl. no. 2S) 02/88

APPENDIX H

Occupational Exposure to Bloodborne Pathogens Proposed Standard

.01 Scope and Application

A. This chapter applies to occupational contact with human blood and other body fluids, tissues, and with substances associated with the laboratory study of Bloodborne Pathogens and Disease in all places of employment covered by the Maryland Occupational Safety and Health Act, Article 89, Section 29 et seq., Annotated Code of Maryland.

B. This Chapter does not preempt any other regulation or standard.

.02 Definitions

A. "Bloodborne Pathogens"

1. Means pathogenic microorganisms which:
   a. are present in human blood, and
   b. can cause disease in humans.
2. Includes, but is not limited to, Hepatitis B Virus ("HBV"), Hepatitis non-A and non-B Viruses, and Human Immunodeficiency Virus ("HIV").

B. "Body Fluids" mean human blood, blood products, semen, vaginal secretions, purulent drainage and cerebrospinal, synovial, pleural, peritoneal, pericardial and amniotic fluids, saliva in dental procedures and any other body fluids containing visible blood.

C. "Contact" means contact without regard to the use of any personal protective clothing and equipment, between an employee's skin or mucous membranes and another person's blood or other body fluids, tissues, or a laboratory substance associated with the laboratory study of Bloodborne Pathogens or Disease.

D. "Contact task" means a job related task, or group of tasks, where contact, as defined in C, above, may be reasonably anticipated based upon consideration of the task or group of tasks.

E. "Exposure" means another person's blood or other body fluids, tissues or a laboratory substance being introduced into the body of an employee by:

1. Penetrating the skin (percutaneous),
2. Passing through:
   a. A mucous membrane in the eye, mouth or nose (mucocutaneous), or,
   b. Skin that is abraded or otherwise non-intact (cutaneous), or
   c. Intact skin when there is prolonged direct contact with large amounts of blood or other body fluids.

F. "Laboratory substance" means materials associated with the laboratory investigation of Bloodborne Pathogens or Disease, such as blood or an organ or excreta from an experimental animal, an embryonated egg, and a tissue or cell culture.

G. "Purulent drainage" means drainage containing pus.

.03 Initial Determination

A. An employer shall:
   1. Evaluate each routine or reasonably anticipated job-related task or group of tasks,
   2. Determine which are contact tasks,
   3. make a written record of the determination,
   4. Provide the record to the employee or post the record in a place accessible to employees, and
   5. Establish a system to ensure that tasks are evaluated whenever there is a process, material, control or personnel change which may result in new or additional contact tasks.

B. If an employer has no contact task in the place of employment, the employer shall make and post or provide to employees a written record of the determination in accordance with Section A, above,

C. If an employer has any contact tasks in the workplace, the employer shall:
   1. Identify all employees who may be required in the course of their employment to perform a contact task;
   2. Ensure that employees who are not required to perform contact tasks receive the information noted in regulation .11A;
   3. For each contact task, determine the likelihood of contact by:
      a. Assuming that all human blood and other body fluids, or tissues are infectious, and
      b. Assessing the following factors:
         i. The type and volume of body fluids or tissues involved,
         ii. The probability of contact, as indicated by the tasks, work practices, tools and other contributing elements, and
         iii. The probable type of exposure, for example through the skin when the skin is non-intact or when work involves the use of sharp instruments, or through the mucous membranes when there may be a splash of blood or other body fluids.

.04 Contact Tasks — General Requirements

A. For each contact task, an employer shall implement, to the extent feasible, and practicable, engineering controls as the primary method to reduce the likelihood of contact between the skin or mucous membrane of an employee and another person's blood or other body fluids, tissues, or a laboratory substance.
   2. Providing appropriate personal protective equipment ("PPE"), houskeeping, workplace monitoring, post-exposure monitoring, and training as required by this chapter.

B. If conditions change in a manner that affects the potential for contact, an employer shall ensure that tasks are evaluated to determine which are contact tasks.

.05 Engineering Controls

A. For each contact task, an employer shall implement, to the extent feasible, and practicable, engineering controls as the primary method to reduce the likelihood of contact between the skin or mucous membrane of an employee and another person's blood or other body fluids, tissues, or a laboratory substance.

B. Engineering controls include:
   1.The use, to the fullest extent feasible, of substances, procedures or devices which prevent the potential for contact.
   2. Substituting, for existing procedures and devices, procedures and devices less likely to result in exposures.
   3. Isolation or containment of the source of potential contact by, for example:
      a. Disposable, puncture-resistant containers for used needles, blades or other sharp objects.
      b. Glove boxes, ventilated cabinets or other enclosures.

.06 Work Practices

A. After implementing appropriate engineering controls, an employer shall further reduce the likelihood of contact by developing and implementing appropriate work practices for each contact task.

B. An employer shall:
   1. Develop work practices which delineate the methods or procedures to be used to minimize contact in accordance with the factors set forth in regulation .03,
   2. Maintain the work practices in writing, and
   3. Ensure that an employee who may be required in the course of their employment to perform a contact task has:
      a. Ready access to the relevant written work practices, and
      b. Training in the appropriate work practices.

C. CONTENT
   1. At a minimum, the employer shall ensure that the work practices require that:
      a. All procedures involving blood or other body fluids, tissues or laboratory substances are performed in a manner to minimize splashing, spraying and aerosolization of these substances.
      b. Personal protective equipment, in accordance with Regulation .07, is used to mimimize contact.
      c. Skin is thoroughly washed with soap and water or cleaned with skin degermers as immediately as possible after contact with human blood or other body fluids, tissues or with a laboratory substance.
      d. hands are thoroughly washed with soap and water or cleaned with skin degermers upon removal of gloves.
      e. An article that has touched blood or other body fluids, tissues or a laboratory substance is placed.
         (i) In an impervious bag, and
         (ii) In a second bag, if the single bag is likely to tear or to be contaminated on the outside.

f. Cleaning or laundering of contaminated personal protective equipment is by methods compatible with manufacturer's recommendations and under appropriate conditions to effectively decontaminate and maintain the protection factors of the equipment.

g. Sharp items, such as needles and scapel blades are:
   (i) Handled carefully, and
   (ii) Placed in a labeled, closable, puncture-resistant, splatter-proof container for disposal.

h. Used needles are not:
   (i) Bent, broken or otherwise manipulated by hand, or
   (ii) recapped by hand, in the absence of substantial justification for recapping.

i. Mouth pipefitting or suctioning is prohibited.

2. An employer shall establish and implement procedures for appropriate clean-up and notification of management when a spill of blood or other body fluids, tissues or a laboratory substance occurs.

3. A hospital or health care employers shall ensure strict adherence to general infection control guidelines as established by the Centers for Disease Control (CDC) and the Joint Commission for the Accreditation of Health organizations.

4. A research laboratory or production facility employer engaged in the culture, production, concentration and manipulation of Bloodborne Infectious Disease shall ensure strict adherence to the infection control practices established by the Centers for Disease Control.

5. An employer of pre-hospital emergency personnel who provide services to the public shall ensure that in addition to the above protections, the work practices for pre-hospital personnel provide for:
   a. Employees protecting any cuts or abrasions with bandages or small dressings.
   b. An appropriate means of clean-up at the emergency site, including, but not limited to foamed alcohol hand and skin degermers.
   c. An opportunity to decontaminate or change contaminated or potentially contaminated clothing and equipment before proceeding to another incident, to the extent feasible.
   d. Appropriate bags for placing soiled uniforms or equipment until these items may be disposed of or cleaned and decontaminated.

6. The various recommendations from the Centers for Disease Control for the prevention of transmission of Blood-borne Infectious Disease, published in Morbidity and Mortality Weekly Reports (MMWR), should be used as guidelines for the development of work practices.

.07 Personal Protective Clothing and Equipment

A. **For each contact task, an employer shall:**
   1. Determine the appropriate personal protective clothing and equipment for reducing the likelihood of contact presented in the task in accordance with Regulation .03,
   2. Specify the appropriate personal protective clothing and equipment in the written work practices,
   3. Provide the specified clothing and equipment,
   4. Maintain the clothing and equipment in good condition, and
   5. Require the employee to use the clothing and equipment provided.

B. The employer shall provide to an employee who performs contact tasks routinely the following personal protective clothing and equipment:
   1. Appropriate gloves, taking into account:
      a. The size of the glove,
      b. The strength of the glove, and
      c. The permeability of the glove;
   2. If there is the potential for eye, nose or mouth contact with splashes of blood or other body fluids or tissues, masks, protective eyewear or chin length face shields;
   3. If there is a potential for clothing becoming soaked with blood or other body fluids, protective outer garmets such as impervious coveralls and shoe covers; and
   4. If the need for resuscitation is predictable, a mouth-piece, resuscitation bag, or other ventilation device.

C. For an employee who may be required to perform contact tasks on an intermittent or non-routine basis, an employer shall:
   1. Ensure ready access to the personal protective equipment appropriate for the task, and
   2. Require the use of the equipment to the extent feasible when the employee performs the task.

.08 Housekeeping

A. An employer shall implement a housekeeping program to minimize the potential for employee contact.

B. When a piece of equipment or a working surface has been in touch with blood or other body fluids, tissues or a laboratory substance, an employer shall ensure that it is cleaned and disinfected properly and effectively.

C. In determining the appropriate cleaning method, an employer shall take into account the surface and equipment involved and current CDC guidelines.

D. An employer shall ensure that all infectious waste is disposed of in accordancce with applicable federal, state and local regulations.

E. Laundry.
An employer shall ensure that:
1. Laundry which is or may be soiled with blood or other body fluids or laboratory substance is:
   a. Treated as if contaminated;
   b. Handled as little as possible;
   c. Appropriately bagged at the location where it was used; and
   d. Cleaned or laundered in a way which inactivates or destroys bloodborne patho ,ens.
2. Laundry workers wear protective gloves and other appropriate personal protective work clothing while handling or sorting potentially contaminated laundry.

.09 Workplace Monitoring

An employer shall monitor the effectiveness of engineering controls, work practices, protective equipment and housekeeping by

A. Conducting regular surveillance of the workplace to ensure that:
   1. Engineering controls are maintained or replaced to ensure effectiveness, and
   2. Employees performing contact tasks:
      a. Follow work practices, and
      b. Properly use the protective clothing and equipment provided.

B. Providing, after report of an occupational exposure for:
   1. Investigation of the conditions surrounding the reported occupational exposure, and
   2. Improvement, as necessary, of training, engineering, work practices, or protective clothing and equipment to prevent or limit recurrence of occupational exposure.

.10 Post Exposure Medical Monitoring

A. For places of employment where employees perform contact tasks, an employer shall make provisions for medical monitoring and counseling without cost to the employee for exposed employees.

B. An employer shall;
   1. Subsequent to a report of occupational exposure and at the request of the exposed employee, provide monitoring for serological evidence of HBV, HIV and any other Bloodborne Pathogens reasonably anticipated:
      a. Immediately following the reported exposure;
      b. Periodically thereafter, in accordance with established medical practice;
      c. In a manner that protects the confidentiality of;
         (i) The employee's identity, and
         (ii) The test results.
   2. Ensure that all medical evaluations and procedures are performed by or under the supervision of a licensed physician and thats all laboratory tests are conducted by an accredited laboratory.
   3. Provide counseling:
      a. By an individual trained to address the issues arising from potential exposure to Bloodborne Pathogens for an employee who:
         (i) Has reported an occupational exposure, or
         (ii) Participates in serological monitoring provided under B(1).
      b. Which includes information:
         (i) About the modes of transmission of Bloodborne Pathogens,
         (ii) Of the availability of any medical established post exposure preventive treatment,
         (iii) About the availability of resources within the community, and
         (iv) Any other details available about the nature of the occupational exposure

.11 Employee Information and Training and Education

A. An employer in a workplace having any contact task shall ensure that all employees receive general information at the time of initial employment or within 90 days after the effective date of this standard about Bloodborne Pathogens and are informed of the occupational exposure risk factors associated with transmission of Bloodborne Pathogens, including HBV and HIV, so that the employee can recognize situations which pose potential for occupational exposure and ways to avoid or minimize personal risk.

B. For all employees who may be required in the course of their emplyment to perform a contact task, an employer shall:
   1. Establish and maintain an employee training and eduation program.
   2. Train employees concerning the appropriate engineering controls, work practices and PPE:
      a. Within 90 days after the effective date of this standard, or
         Before the employee begins to perform the task,
      b. At least annually, while the employee is assigned to the task, and
      c. Whenever conditions change in a manner that increases the potential for contact.

3. **Content.** An employer shall cover at least the following topics in the training program:
   a. The modes of transmission of Bloodborne Pathogens and Disease, including HBV and HIV.
   b. The availability of vaccines:
      (i) That an effective vaccine for HBV is currently available, and
      (ii) Of the availability of another vaccine, when a safe and effective vaccine for any other Bloodborne Pathogen becomes available.
   c. The availability of post exposure blood monitoring and counseling to an employee who makes a request immediately following an occupational exposure, and
   d. An explanation of the procedure to follow if an occupational exposure occurs, including:
      (i) The method of reporting the incident, and
      (ii) Time frames for making the report.
   e. Availability of post exposure preventive treatment.
   f. Recognition of contact tasks.
   g. Protective clothing and equipment generally appropriate for contact tasks and the basis for selecting clothing and equipment.
   h. The location and proper use of protective clothing and equipment.
   i. Appropriate removal, handling, cleaning, and disposal of contaminated clothing or equipment.
   j. The limitations of protective clothing and equipment.
   k. Corrective actions to take in the event of spills or personal exposure to blood or other body fluids, tissues or a laboratory substance, and the appropriate reporting procedures.

4. Periodic training may be refresher training which highlights the above information.

.12 Recordkeeping

For workplaces where an employee is required to perform a contact task, the employer shall maintain records in accordance with 29 CFR 1910.20 which has been incorporated by reference in COMAR 09.12.31, of:

A. Initial determinations and the procedure used to identify contact tasks.
B. The method of developing work practices.
C. The training provided.
D. Workplace reviews for compliance.
E. **Exposure Monitoring**
   1. The conditions associated with an incident of occupational exposure.
   2. An evaluation of those conditions.
   3. A description of measures taken to prevent a recurrence or other similar exposure.